

WHAT IS CLAIMED IS:

1. A photosensitive lithographic printing plate

5 comprising:

a support; and

a photosensitive layer,

wherein the photosensitive layer comprises a polyurethane
resin binder comprising an aliphatic cyclic structure which
10 has a carboxyl group as a substituent directly or indirectly
attached to the structure.

2. A photosensitive lithographic printing plate

comprising:

15 a support; and

a photosensitive layer,

wherein the photosensitive layer comprises a polyvinyl
alcohol resin binder modified with an acetal skeleton comprising
an aliphatic cyclic structure.

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3. The photosensitive lithographic printing plate

according to claim 2, wherein the polyvinyl alcohol resin binder
comprises an acid radical.

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4. The photosensitive lithographic printing plate according to claim 1, wherein the photosensitive layer further comprises:

one of a photo-polymerization initiator and a
5 heat-polymerization initiator; and
a compound having at least one ethylenically unsaturated bond capable of addition polymerization.

5. The photosensitive lithographic printing plate
10 according to claim 2, wherein the photosensitive layer further comprises:

one of a photo-polymerization initiator and a
heat-polymerization initiator; and
a compound having at least one ethylenically unsaturated bond
15 capable of addition polymerization.

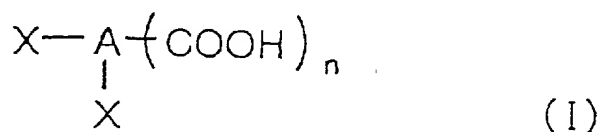
6. The photosensitive lithographic printing plate according to claim 3, wherein the photosensitive layer further comprises:

20 one of a photo-polymerization initiator and a
heat-polymerization initiator; and
a compound having at least one ethylenically unsaturated bond
capable of addition polymerization.

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7. The photosensitive lithographic printing plate according to claim 1, wherein the polyurethane resin is obtained by the reaction of a compound comprising an aliphatic cyclic structure and two groups selected from carboxyl, hydroxyl and -NHR¹ groups, wherein R¹ represents one of a hydrogen atom and a substituted or unsubstituted monovalent hydrocarbon group having 1 to 20 carbon atoms, with a diisocyanate compound.

8. The photosensitive lithographic printing plate according to claim 7, wherein the compound comprising an aliphatic cyclic structure and two groups selected from carboxyl, hydroxyl and -NHR¹ groups, wherein R¹ represents one of a hydrogen atom and a substituted or unsubstituted monovalent hydrocarbon group having 1 to 20 carbon atoms is represented by the following formula (I):



wherein A represents a (n+2)-valent hydrocarbon group having 3 to 80 carbon atoms, the (n+2)-valent hydrocarbon group having a substituted or unsubstituted aliphatic cyclic structure; each of X's represents independently one of a hydroxyl group and -NHR¹ wherein R¹ represents one of a hydrogen atom and a substituted or unsubstituted monovalent hydrocarbon group having 1 to 20 carbon atoms; and n represents an integer of from 1 to 5.

9. The photosensitive lithographic printing plate according to claim 1, wherein the polyurethane resin binder has an acid value of from 0.1 meq/g to 10.0 meq/g.

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10. The photosensitive lithographic printing plate according to claim 4, wherein the photosensitive layer comprises the compound having at least one ethylenically unsaturated bond in an amount of 5 to 80 % by weight based on the total amount of non-volatile components comprised in the photosensitive layer.

11. The photosensitive lithographic printing plate according to claim 5, wherein the photosensitive layer comprises the compound having at least one ethylenically unsaturated bond in an amount of 5 to 80 % by weight based on the total amount of non-volatile components comprised in the photosensitive layer.

12. The photosensitive lithographic printing plate according to claim 4, wherein the photo-polymerization initiator comprises a titanocene compound.

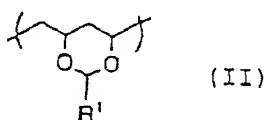
13. The photosensitive lithographic printing plate according to claim 5, wherein the photo-polymerization

initiator comprises a titanocene compound.

14. The photosensitive lithographic printing plate according to claim 1, which further comprises an IR absorbing agent comprising one of a dye and a pigment both having an absorption maximum in the range of from 760 to 1200 nm.

15. The photosensitive lithographic printing plate according to claim 2, which further comprises an IR absorbing agent comprising one of a dye and a pigment both having an absorption maximum in the range of from 760 to 1200 nm.

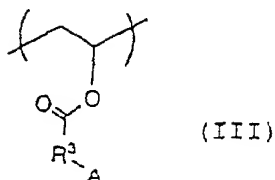
16. The photosensitive lithographic printing plate according to claim 2, wherein the polyvinyl alcohol resin binder comprises a constituent unit represented by the following formula (II):



wherein R¹ represents a monovalent hydrocarbon group, having from 3 to 30 carbon atoms, which comprises an aliphatic cyclic structure optionally having at least one substituent.

17. The photosensitive lithographic printing plate according to claim 2, wherein the polyvinyl alcohol resin binder

comprises a constituent unit represented by the following formula (III):

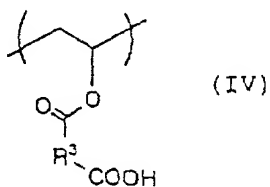


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wherein R³ represents a divalent hydrocarbon group having from 1 to 30 carbon atoms and optionally having at least one substituent, and A represents an acid radical.

10 18. The photosensitive lithographic printing plate according to claim 5, wherein A represents an acid radical having an acid dissociation constant of not greater than 7.

15 19. The photosensitive lithographic printing plate according to claim 2, wherein the polyvinyl alcohol resin binder comprises a constituent unit represented by the following formula (IV):



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wherein R³ represents a divalent hydrocarbon group having from 1 to 30 carbon atoms and optionally having at least one substituent.

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20. The photosensitive lithographic printing plate according to claim 2, wherein a molecular weight of the polyvinyl alcohol resin binder is from 2,000 to 1,000,000.

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